TITLE--NATURE OF THE DESTABILIZATION OF ZR SUB1 MINUS X CA SUBX O SUB2 MINUS X SOLID SOLUTIONS DURING REACTION WITH BORON OXIDE -U-

AUTHOR-(04)-FILATOV, S.K., FRANKKAMENETSKIY, V.A., ZHURAVINA, T.A., KRYLOV, V.N.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, NEORG. MATER. 1970, 6(1), 166-7

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS, PHYSICS

TOPIC TAGS--SOLID SOLUTION, CRYSTAL LATTICE STRUCTURE, ZIRCONIUM, CALCIUM OXIDE, CHEMICAL REDUCTION, BORON

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1984/0082   STEP NO--UR/0363/70/006/001/0166/0167

CIRC ACCESSION NO--AP0054879

UNCLASSIFIED

CIRC ACCESSION NO--AP0054879

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE UNIT CELL PARAMETERS OF THE
STABILIZED CUBIC LATTICE OF $ZR_{SUB1 MINUS X}$-CA $SUBX$ O $SUB2 MINUS X$ SOLID
SOLNS. IN THE PRESENCE OF B $SUB2$ O $SUB3$ AND OF THE MONOCLINIC PHASE
FORMING DURING DESTABILIZATION WERE MEASURED. SAMPLES WITHOUT ANY B
PRESENT ARE REPRESENTED ONLY AS THE CUBIC PHASE WITH THE PARAMETER A
BEING CONST. FOR ALL FIRING TEMPS. IN SAMPLES CONTG. 0.3 MOLE PERCENT
CAO AND IN SAMPLES CONTG. B AND ANNEALED AT 600 AND 800DEGREES, THE
PARAMETER OF THE CUBIC PHASE IS CONST. WITHIN THE SAME LIMITS. AFTER
FIRING AT 1000 AND 1200DEGREES, THE SAMPLES ARE A MIXT. OF THE CUBIC AND
MONOCLINIC PHASES, WHICH PREVENTS AN ACCURATE DETN. OF LATTICE
PARAMETERS. THE A PARAMETER OF THE CUBIC PHASE REMAINS CONST. WITHIN
THE EXPTL. ERROR OF PLUS OR MINUS 0.002 ANGSTROM, WHICH CORRESPONDS TO
CONST. CHEM. COMPN. OF PLUS OR MINUS 2 MOLE PERCENT CAO. THE LATTICE
PARAMETERS OF THE MONOCLINIC PHASE ARE CONST. IN ALL CASES WITHIN EXPTL.
ERROR AND ARE CLOSE TO THE PARAMETERS OF PURE $ZRO SUB2$; THE CA CONTENT
IS INSIGNIFICANT. DESTABILIZATION OF CUBIC $ZR SUB1 MINUSX$ CA $SUBX$ O $SUB2$
MINUS X SOLID SOLNS. IS ASSOCD. WITH A LOSS OF CA. THE MONOCLINIC PHASE
FORMING DURING THE DESTABILIZATION IS PRACTICALLY PURE $ZRO SUB2$ AND THE
CA CONTENT IN THE REMAINING CUBIC PHASE REMAINS CONST. WITHIN THE LIMITS
OF 12 PLUS OR MINUS 2 MOLE PERCENT CAO.

USSR

POVOLOTSKIY, D. ..., ..., ...; ... ...
Chelyabinsk Polytechnical Institute

"Influence of Rare-Earth Metals on the Structure and Technological Plasticity
of Chrome-Nickel Stainless Tube Steel"

Novokuznetsk, Izv. VUZ, Chern. Metallurgiy, No 10, 1970, pp ...-...

Abstract: The addition of 0.1% rare-earth elements (rem) to chrome-nickel steel
has no influence on the structure of the ingot upon crystallization of the metal
in the form of the ferrite, but decreases the transcrystallization zone and makes
the grain finer upon crystallization as austenite. Addition of rem guarantee
chrome-nickel steel facilitates even distribution of nonmetallic inclusions through
the cross section of ingots and rolled billets. Microalloying of chrome-nickel
austenitic steel with rem causes a significant increase in technological plasticity
of the metal at rolling temperatures.

1/1

USSR

DITMAN, A. O., GRAZHDANOV, I. M., FILATOV, S. M., MAKSIMOV, N. A., DIANOV, G. P., and DMITRIYEVSKIY, I. V.

"Device for Simulating the Aerodynamic Characteristics of Aircraft"

USSR Authors' Certificate No 378885, Cl. G 06g 7/44, filed 15 Jun 71, published 18 Apr 73 (from Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 19, 1973, p 132)

Abstract: The device contains a magnetic cabin, a full-scale research model, a system of conductors to simulate a stationary vortex sheet, a power supply unit, commutators, a zero indicator, and groups of sensors. The distinctive feature is that, to expand the class of problems that can be solved, it contains a system of U-shaped conductors mounted in the magnetic cabin in the plane of the system of stationary vortex sheet-simulating conductors, a circulation monitor connected to the system of vortex sheet-simulating conductors, coders, and a computing unit connected to the data unit. The full-scale research model is mounted in the magnetic cabin and is connected to the

1/2

USSR

DITMAN, A. O., et al., USSR Authors' Certificate No 378885

system of stationary vortex sheet-simulating conductors. The first group of sensors mounted on the exit edge of the full-scale model is connected through the first commutator to the zero indicator; the second group,through the second commutator to the input of the first coder, whose output is connected to the first input of the computing unit, the second input of which has connected to it the output of the second coder, which is connected through the third commutator to the output of the circulation monitor.

2/2

1/2   035   UNCLASSIFIED   PROCESSING DATE--11SEP70
TITLE--CATALYTIC NEUTRALISER -U-

AUTHOR--FILATOV, S.S., AFANASYEV, K.M.

COUNTRY OF INFO--USSR

SOURCE--U.S.S.R. 236127
REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI, NR 6
DATE PUBLISHED--16JUN69

SUBJECT AREAS--PROPULSION AND FUELS

TOPIC TAGS--PATENT, DIESEL ENGINE, DIESEL FUEL, EXHAUST GAS, CHEMICAL
    NEUTRALIZATION, COMBUSTION CATALYST

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1985/0973   STEP NO--UR/0482/69/000/000/0000/0000

CIRC ACCESSION NO--AA0101260
                         UNCLASSIFIED

CIRC ACCESSION NO--AA0101260
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. MICROFICHE OF ABSTRACT CONTAINS
  GRAPHIC INFORMATION. CATALYTIC NEUTRALISER FOR DIESEL ENGINE EXHAUST
  GASES IS DISTINGUISHED BY MAKING IT IN THE FORM OF HEATERS 1 PLACED ON
  EACH OTHER AND USED AT LOW TEMP. AND CYCLONE. THIS INCREASES ITS
  EFFECTIVE STROKE.

UNCLASSIFIED

USSR   UDC 911.3:61:001.8(4/9)

FILATOV, V. G., GURBO, G. D., MALYSHEV, V. A., and LEVOSHIN, O. A.

"Research Materials on the Landscape Epidemiology of Several Neighboring
Regions in the Urals and Western Siberia"

Translation: Natural foci of zooanthroponoses in the Chelyabinsk, Tyumensk,
and partially in Sverdlovsk regions are discussed. Tickborne encephalitis,
Omsk hemorrhagic fever, rabies, North Asian tickborne scrub typhus Q-fever,
tularemia, leptospirosis, toxoplasmosis, and helminthosis are included. The
problem of a detailed regional, epidemiological classification of the terri-
tory under consideration is discussed.

1/1

USSR   UDC:621.793

FILATOV, V. I., YAGUBETS, A. N., CHELYSHEV, A. A., KOVALEV, A. V.,
Kishinev

"Programming of Certain Conditions of Electrodeposition of Composite
Coatings Hardened by Dispersed Particles"

Kishinev, Elektronnaya Obrabotka Materialov, No 5, 1973, pp 37-40

Abstract: The purpose of this article was the development of a mathe-
matical model of the formation of composite electrochemical coatings
with various contents of inclusions through the thickness of the coating
and experimental testing of the model. The mathematical model of the
mechanism of coating formation produced, including hardening of the
coatings by dispersed hard particles, demonstrates the possibility of
production of wear-resistant coatings with predetermined physical and
mechanical properties.

1/1

- ? -

Thermomechanical Treatment

USSR   UDC: 621.789-977:669.14.018.254

SMIRNOV, M. A., SHTEYNBERG, M. M., GUREVICH, L. G., FILATOV, V. I., SHILKOVA,
T. S., Chelyabinsk Polytechnic Institute

"Hardening of Stamp Steels During High Temperature Thermomechanical
Treatment"

Metallovedeniye i Termicheskaya Obrabotka Metallov, No 9, 1973, pp 29-31.

Abstract: The use of high temperature heat treatment and mechanical working
can increase the mechanical properties of many tool steels. This article
studies the influence of this treatment on stamp steels for hot deformation.
Steels studied included types 5KhNV, 4Kh5MFS, 4Kh4M2VFS (DI22) and 3Kh2V8F,
the latter three of which show a tendency toward dispersion hardening.
Billets 19 x 19 mm, after austenitizing, were rolled in two passes at dif-
ferent temperatures with reductions of 37%, then quenched in oil. The heat-
ing temperature for the high temperature heat treatment and mechanical working
was 850° C for type 5KhNV, 1040° C for type 4Kh5MFS, 1070° C for type 4Kh4M2VFS
and 1100° C for type 3Kh2V8F. All steels were then tempered at 450-650° C.
The tensile strength, impact toughness and thermal stability were determined.
It was found that high temperature plastic deformation accelerates the

1/2

USSR

· Smirnov, M. A., Shteynberg, M. M., Gurevich, L. G., Filatov, V. I., Shilkova, T. S., Metallovedeniye i Termicheskaya Obrabotka Metallov, No 9, 1973, pp 29-31.

breakdown of austenite in all the steels tested, manifested as a decrease in the incubation period and an increase in the breakdown rate. However, the incubation period of the intermediate conversion is increased, the rate and completeness of conversion decrease. Thus, the hardenability of the steels is increased overall. Only the steels with tendencies to dispersion hardening show high stability of thermomechanical hardening during tempering. A signifi- cant increase in strength properties of these steels at room temperature and elevated temperatures is observed after deformation below the Ac_3 point. High temperature heat treatment and mechanical working decrease the brittle-rupture tendency of 4Kh5MFS and 4Kh4M2VFS steels only after deformation at $1000°$ C.

2/2

USSR   UDC: 621.515-253.5:539.4.001.5

ALEKSEYEV, S. A., MITYUSHKIN, YU. I., and FILATOV, V. I.

"The Effect of Axial Clearance and Non-Radial Positioning of the Blades of a
Guide-Vane Assembly on the Vibration Strength of the Working Blades of a Com-
pressor"

Translation: The authors present a study made on a model compressor stage
involving the effect of the axial clearance between the working wheel and
the guide-vane assembly on the level of dynamic bending stresses of the
working blades under conditions of first tone resonance oscillations which
are evoked by the reverse action of the guide-vane assembly, both in the
case of a radial setting of the guide blades with respect to the intake
edge and with respect to their slanting with concave side to the compressor
axis. Original article: 3 illus., 7 bibl. entries.

1/1

USSR   UDC 62-135-154-253.5:534.1:539.4.001.6

MOISEYEV, A. A., MIYUSHKIN, YU. I., ALEKSEYEV, S. A., FILATOV, V. I.

"Modernization of an Air Stand to Study the Vibration Strength of the Working Blades of an Axial Turbine"

Tr. Leningr. korablestroit. in-ta (Works of Leningrad Shipbuilding Institute), 1970, No. 70, pp 79-88 (from RZh-Turbostroyeniye, No 8, Aug 71, Abstract No 8.49.35)

Translation: It is reported that a modernization was carried out on the VS-1 stand for studying dynamic stresses of bending in working blades of axial turbines under resonance oscillations at the Laboratory of Ship Turbines of Leningrad Order of Lenin Shipbuilding Institute. The modernization of the stand consisted of replacing the induction brake with an air brake and in equipping the stand for simultaneous study of vibration stresses in the working blades and the characteristics of the experimental turbine. Adjustment tests completed on the stand showed that with a working grid of circular cylinders the stand can operate in a turbine regime and with a working grid of

1/2

USSR

MOISEYEV, A. A., et al, Tr. Leningr. korablestroit. in-ta, 1970, No. 70, pp 79-88

plates both turbine and compressor regimes are possible. Studies made on the vibrations of cylinders and plates under conditions of a turbine stage showed that the modernization of the stand makes it possible to carry out aerodynamic experiments simultaneously with tensometric studies of the dynamic strength of elastic rods (cylinders of plates and working blades). These experiments make it possible to determine qualitatively the structure of perturbing forces (pulses) at high-frequency resonances and to determine the economy of a turbine stage with various structural features for decreasing the dynamic bending stresses under blade vibrations. 7 ill., 20 ref. L. P. A.

2/2

- 175 -

TITLE--MECHANICAL PROPERTIES OF STRUCTURAL STEELS AFTER NORMAL HARDENING
   AND AUSTEMPERING -U-

AUTHOR--USHAKOV, V.G., GONCHAR, V.N., SHILKOVA, T.S., SHTEYNBERG, M.M.,
   FILATOV, V.I.

COUNTRY OF INFO--USSR

SOURCE--METALLOVED. TERM. OBRAB. METAL. 1970, (2) 2-5

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--MECHANICAL PROPERTY, ISOTHERMAL TRANSFORMATION, METAL
   HARDENING, ALLOY DESIGNATION, LOW ALLOY STEEL, STRUCTURAL STEEL, CRACK
   PROPAGATION, METAL HEAT TREATMENT, AUSTENITE, BRITTLE
   FRACTURE/(U)30KHGSN2A LOW ALLOY STEEL, (U)30KHGSNMA LOW ALLOY STEEL,
   (U)30KHGSN2MA LOW ALLOY STEEL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1988/1307   STEP NO--UR/0129/70/000/002/0002/0005

CIRC ACCESSION NO--AP0106084
                         UNCLASSIFIED

CIRC ACCESSION NO--AP0106084

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE KINETICS OF ISOTHERMAL
DECOMPN. OF SUPERCOOLED AUSTENITE WAS STUDIED TO ESTABLISH THE OPTIMAL
AREA OF ISOTHERMAL HARDENING FOR STEELS 30KHGSN2A, 30KHGSN4A, AND
30KHGSN2MA. THE MECH. PROPERTIES OF THE STEELS, PREPD. UNDER
INDUSTRIAL CONDITIONS, WERE STUDIED WITH DEPENDENCE ON TEMP. AND THE
TIME HELD IN THE HOT MEDIUM AS WELL AS THE TEMP. OF THE SUBSEQUENT
ANNEAL. THE MECH. PROPERTIES FOLLOWING ISOTHERMAL HARDENING WERE
COMPARED WITH THE PROPERTIES FOLLOWING NORMAL HARDENING AND ANNEAL.
UNDER SIMILAR CONDITIONS, STRENGTH PROPERTIES OF THE 3 STEELS,
ISOTHERMALLY HARDENED, SHOW LESS TENDENCY TO BRITTLE FRACTURE THAN
FOLLOWING NORMAL HARDENING AND ANNEAL, SINCE IN THE LATTER INSTANCE,
ANNEAL COINCIDES WITH DEVELOPMENT OF BRITTLENESS. ISOTHERMAL HARDENING
OF THE STUDIED STEELS INCREASES THE FUNCTION OF CRACK PROPAGATION AS
COMPARED WITH NORMAL TEMPER AND ANNEAL AT SIMILAR STRENGTHS.

UNCLASSIFIED

Acc. Nr: *APOO34764*   Ref. Code: UR 0241

IDENTIFICATION OF FOCAL LESIONS ON SCANNOGRAMS

Ignat'yev, U. V.; Serebryanyy, E. G.; Sergiyenko, V. B.;
                  Filatov, V. I.

Summary

Experiments which helped to establish regularities making possible for the physicians to read scannograms and identify local lesions on them are described. Information characteristics are presented and recommendations substantiated, facilitating the choice of optimal scanning conditions.

D.π.

REEL/FRAME

19711474

O2

USSR

UDC 616.281-073-18

FILATOV, V. I., Professor, and GRIGOR'YEV, YE. S., Engineer, Ear Nose and Throat Clinic of the Arkhangel'sk Medical Institute

"A New Design of an Electromechanical Guided Chair with Device Recording Nystagmus"

Kiev, Zhurnal Ushnykh Nosovykh i Gorlovykh Bolezney, No 6, 1971, pp 103-104

Abstract: An outline and a description of a rotary chair designed and built by the authors at the Ear Nose and Throat Clinic are presented. The mechanisms are mounted in the encased base and pedestal of the chair. The angular velocity can be increased from 1 to $180°$ per sec, yielding smooth acceleration and an identical deceleration after a desired period of uniform velocity. The velocity is indicated by a dial pointer which deflects in proportion to the number of RPM's. EEG electrodes project from a flexible tube at the level of the patient's head. The leads run into the pedestal, where the currents are picked up by another pair of wires connected to a recording instrument. The chair was tested and proved sturdy and reliable.

1/1

USSR   UDC: 621.3.083.8:531/768

BYKOV, V. A., VOLKOV, L. N., VOLNYANSKIY, V. N., KISHCHENKOV, O. V.,
SARINGULYAN, Ye. Kh., FILATOV, V. M.

"A Digital Accelerometer"

Translation: This Author's Certificate introduces a digital accelerometer
which contains a sensing element with moment and position pickups, and an
amplifier with its input connected to the position pickup, while the out-
put is connected to the moment pickup through a series circuit comprised
of a pulse-duration modulator and a feedback pulse shaper. The device
also contains a pulse generator connected through a switch to a counter.
As a distinguishing feature of the patent, accuracy is improved by in-
cluding a comparison unit connected to the amplifier output, and a con-
trol unit whose output is connected to the controlling input of the switch.
One input of the control unit is connected to the output of the comparison
unit, and the other is connected to the modulator output.

1/1

USSR   UDC 539.3

KARPOV, V. V., FILATOV, V. N.

"Computation of Flexible Hollow Shells Under the Effect of Uniform Temperature"

V sb. Raschet prostranstv. sistem v stroit. mekh. (Calculation of Three-Dimensional Systems in Structural Mechanics -- Collection of Works), Saratov, Saratov University, 1972, pp 193-196 (from RZh-Mekhanika, No 3, Mar 73, Abstract No 3V105)

Translation: The problem of large flexible hollow shells placed in a given temperature field is considered. The consecutive load method is applied (see Petrov, V. V., Nauchn. dokl. vyssh. shkoly.Stroitel'stvo (Scientific Papers of the Higher School. Construction), 1959, No. 1, pp 27-35 -- RZhMekh, 1960, No 12, Abstract No 16562). The method makes it possible for the solution of the initial nonlinear system to replace the consecutive solution of linear systems of partial differential equations. The latter is reduced to systems of ordinary differential equations by the Bubnov-Vlasov method and these are integrated by applying the Runge-Kutta method. Temperature-bending curves are constructed for different values of the curvature parameter. Values of the maximum bending stresses at the center of the shell are tabulated for a given temperature and different curvatures. Yu. P. Zhigalko.

1/1

– 104 –

Abstract: The author studies an astatic gyroscope in a Cardan suspension, where
the gyroscope executes forced angular oscillations with respect to the alpha and
beta coordinates under the influence of periodic disturbing forces, with the coor-
dinate alpha being the angle of gyroscope rotation about the external axis and the
coordinate beta being the angle of gyroscope rotation about the internal axis of
the Cardan suspension. A vibro-impact damper is set on the gyroscope housing. This
damper has the form of a pin which is rigidly fastened to the gyroscope housing
with a ring set on it with a clearance. Structurally the damper is made in such a
way that the ring can only execute angular oscillations with respect to the gyro-
scope suspension center in the plane which coincides with the plane of gyroscope
oscillations with respect to the angle beta. The solution of the problem rests on
the ssumption that periodic motion can be set up whose period is equal to or is a
multiple of the disturbing force period under the effect of a periodic force on
the system. The source of the motion of the ring set on the pin is its impact
interaction with the gyroscope which is undergoing forced oscillation. The ring is

1/2

USSR

considered to be the load. This type of damper has been known since 1931 and has been used for damping the vibrations of turbine blades, metal cutters, and air-craft constructions. The dynamics and stability of vibro-impact regimes are con-sidered. Relationships are obtained which make it possible to select the parame-ters of a vibro-impact damper. Stability charts and the results of experimental calculations are given. The author thanks D. M. Klimov for his formulation of the problem.

2/2

USSR   UDC 621.43.011:533+621.5:533

FILATOV, V. V.

"Determining the Structure of a Supersonic Reexpanded Gas Jet in the Initial Section"

Gidroaeromekh. i teoriya uprugosti. Mezhvuz. nauch. sb. (Hydroaeromechanics and Elasticity Theory. Inter-VUZ Scientific Collection), 1971, No. 13, pp 3-11 (from RZh-Mekhanika, No 3, Mar 72, Abstract No 3B375)

Translation: The results of an experimental study of the structure of the initial section of a supersonic reexpanded gas jet flowing from conical and shaped axisymmetric nozzles are presented. The effect of Mach numbers at the exit, aperture angle of the nozzle, and other factors on the basic characteristics was investigated. A technique is proposed on the basis of the empirical relationships obtained for calculating the structure of the jet in the initial section. Experimental data were obtained in air. Author's abstract.

1/1

Abstract: The subject of discussion is a radial ball bearing, mounted on the trunnion of a gyroscope gymbal-mount. An investigation is made of the influence of fabrication errors of the radial ball bearing upon the drift rate of the gyroscope. Relationships are obtained which make possible to calculate the gyroscope drift rate in relation to the radial load, the position of the balls, and the fabrication errors of the gymbal-mount bearings. Application of the obtained formulas is illustrated on the basis of specific examples. Eleven figures, 5 references.

1/1

-136 -

Gyroscopic

USSR

FILATOV, V. V. (Moscow)

"The Influence of the Correction with an Insensitivity Zone Upon the Drift of an Astatic Gyroscope Mounted on a Rocking Base"

Moscow, Mekhanika Tverdogo Tela, No 4, Jul-Aug 70, pp 42-49

Abstract: The article deals with an astatic gyroscope in Cardan suspension, mounted on a rocking base. The influence of the inter-gimbal correction with an insensitivity zone upon the drift of the gyroscope is investigated. Formulas are obtained which determine the gyroscope drift for the case of relay and proportional correction with an insensitivity zone. Reference is made to papers dealing with the influence of inter-gimbal correction without an insensitivity zone upon gyroscope drift. 7 figures, 7 bibliographic entries.

1/1

FILATOVA, YE.A.

"Solution By The Simulation Method Of The Problem Of Signal Preparation In Nonuniform Dispersive Media"

Abstract: The advantage of the simulation method discussed consists in the fact that it only uses quantification of the coordinates along which the parameters of the medium change. In contrast to numerical methods, the present method does not require quantification with respect to frequency and time. As a test experimental simulation, the frequency dependence was determined of the penetration factor of a plane wave through a "symmetrical" plasma layer without losses. The width of the layer is characterized by the dimensionless parameter s. The circuit of the simulator is presented as well as a graph showing the dependence of the module of the penetration factor on the frequency and the results of a precise analytical calculation. 2 fig. Received by editors, 13 September 1971.

1/1

- 17 -

USSR

UDC: 533.69.01+533.622.013

FILATOV, Ye. I.

"Optimization of the Shape of Supporting Bodies for Hypersonic Velocities"

Sb. aspirantsk. rabot. Kazan. un-t. Tochn. nauki. Mat. (Collected Works of Graduate Students. Kazan' University. The Exact Sciences. Mathematics), 1970, vyp. 1, pp 102-108 (from RZh-Mekhanika, No 7, Jul 71, Abstract No 7B321)

Translation: An attempt is made to find a surface which encloses a given volume having maximum aerodynamic quality at hypersonic velocities and does not conform to any conditions save those of limited heating and stability. The problem was solved under the following assumptions: there exists a plane of symmetry between the left and right halves of the wing; the velocity vector of the oncoming flow is collinear with the plane of symmetry; each half of the wing is bounded by a plane from above; the coefficient of pressure on the surface of the wing is defined by Newton's formula; the average coefficient of friction is considered constant; the influence of the bottom section is not considered; the planform of the

1/2

FILATOV, Ye. I., Sb. aspirantsk. rabot. Kazan. un-t. Tochn. nauki. Mat.,
1970, vyp. 1, pp 102-108

wing is triangular. The variational problem as formulated was solved
numerically by the Ritz method. A sequence of polynomials was used as
a minimizing series. Numerical calculations for the case where the effect
of the leading edge on the shape of the optimum surface was disregarded
showed that the lower surface to be determined is close to a plane, and
that the body with maximum aerodynamic quality is a pyramid with a flat
lower surface. A. V. Krasil'nikov.

2/2

- 11 -

USSR

UDC 533.69.013

FILATOV, YE. I.

"The Shape of the Leading Edge of a Thin Wing, the Resistance of Which is Minimal at Supersonic Velocities"

Kazan', Izvestiya Vysshykh Uchebnykh Zavedeniy, Aviatsionnaya Tekhnika, No 3, 1970, pp 39-43

Abstract: The problem of the shape of the leading edge of a thin wing, the resistance of which is minimal at supersonic velocities, is dealt with within the framework of the Newton theory. The shape of the bluntness in a cross section normal to the leading edge was considered known. The following cases were considered: 1) when the shape of the bluntness does not vary along the wing-span, 2) when it remains similar in all cross sections that are normal to the leading edge. In the first case, with given values of the length of the leading edge, the semispan, or the chord, a wing with rectilinear leading edges proved to be the optimal one. In the second case, the assumption was made that the thickness r

1/2

USSR

FILATOV, YE. I., _Izvestiya Vysshykh Uchebnykh Zavedeniy, Aviat-sionnaya Tekhnika_, No 3, 1970, pp 39-43

of the bluntness changes slowly along the leading edge u. An
expansion into a series with respect to the degrees of the
derivative r'_u was obtained for the functional which determines
the resistance of the leading edge; this expansion is convenient
for further research. Considered as an example was the case of a
thin wing for which r is a function only of u. For a linear
relationship of r to u the results are illustrated by a graph.
2 figures, 6 bibliographic entries.

2/2

- 11 -

USSR

UDC 621.791.539.217.1.669.715.767

ALOV, A. A., FILATOV, Yu. A., LEVCHENKOVA, L. A.

"Porosity of Welded Joints in Aluminum Alloys"

Kiev, Avtomaticheskaya Svarka, No 1, Jan 73, pp 70-71.

Abstract: Transmission x-ray studies of joints in aluminum-magnesium alloys made by argon-arc welding have shown pores along the edges of the seams in certain cases. Studies have established that the porosity results from the following processes: 1) during welding, the liquid metal partially flows onto the unmelted surfaces of the edges, covered with a hydrated oxide film. The film is dehydrated with liberation of hydrogen and formation of pores, generally spherical in shape. 2) welding of clad items (sheets and plates) with incomplete removal of the cladding layer results in the development of porosity in the near-seam zone due to unsatisfactory attachment of the clad layer to the base metal. 3) pores are observed along side the seam in high temperature areas in the form of trains along the fibers of the welded goods. This defect results from the presence of discontinuities -- microstratifications and increased concentration of hydrogen in the goods being welded -- as well as strong overheating of the metal, reducing its strength and facilitating the diffusion of hydrogen.
1/1

- 66 -

USSR

UDC 669.716:621.791.011

ALOV, A. A., FILATOV, Yu. A., and LEVCHENKOVA, L. A.

"The Effect of the Production Technology of Deformed Semifinished Products of the AMg6 Alloy on Their Weldability"

Metallovedeniye Splavov Legkikh Metallov--Sbornik, Moscow, "Nauka", 1970, pp 37-42, resume

Translation: The effect of microlaminations and hydrogen in deformed semi-finished products of AMg6 alloys on their weldability was investigated. A method for checking the sensitivity of semifinished products to the formation of pores in near-seam zones is recommended. Seven figures, ten bibliographic references.

1/1

- 64 -

USSR   •

UDC 531.776.088:621.375.826

GUTMAN, G. B., ROLICH, V. I., TIMOFEYEV, V. M., TRET'YAKOV, V. E., and
FILATOV, Yu. V.

"On Exactness Characteristics of a Measuring Annular Laser Transducer of Angular Speed"

Translation: The errors of a measuring transducer of angular speed, based on an annular gas laser, were experimentally investigated. Measurements were made for different time intervals when stabilizing the emission fre-quency of the annular laser and without stabilizing. It is demonstrated that the stabilization of emission frequency significantly increases the measuring accuracy of angular speed. The exactness characteristics of the apparatus were determined for different angular speeds when measuring mean and current values of angular speed. Six illustrations, four bibliographical references.

1/1

USSR   UDC 669.184.244.66

BLINOV, K. A., VERBITSKIY, YA. D., AFANAS'YEV, S. G., KVITKO, M. P., and FILATOV, YU. V.

"Study of the Interaction of the Gas Stream With the Liquid Bath on Cold Models"

Proizvodstvo Chernykh Metallov (Production of Ferrous Metals-Collection of Works,) No 75, Metallurgiya Press, 1970, pp 89-93

Translation: Problems of the formation and removal of spray from the throat of a converter and along its height are discussed. Experiments were performed using a cold model of a 10 T converter. The liquid modeling the metal was ordinary water.
     It was established that the nature of the change in spray transfer for all types of heads studied was identical, although the rate of reduction of the quantity of spray in the throat of the model was higher upon transition to higher oxygen flow rates for a 13-nozzle tuyere than for other types. The characteristics produced indicate that when the oxygen converter process is intensified, tuyere designs should be used providing the maximum breakup of the gas stream, in order to avoid splashing and loss of metal. 5 figures; 6 biblio. refs.
1/1

USSR   UDC:669.18:-147:621.746

POLYAKOV, V. V., SHORSHIN, V. N., NEKHAYEV, V. P., KVITKO, M. P., SINEL'NIKOV,
V. A., FILATOV, Yu. V., YUGOV, P. I., and USTYUZHANIN, V. D.

"Study of Technology of Melting in an Oxygen Converter and Pouring of Type K-76
Rail Steel in a Continuous Casting Unit"

Translation: Results are presented from a study of a new, progressive metal-
lurgical process--the production of railroad rails of high-quality ingots pro-
duced by continuous casting in combination with melting of rail steel in an
oxygen converter.
    It is assumed that the process is promising for further increases in the
strength of railroad rails and reduction of the expense of their production.
5 figures; 4 tables; 5 biblio. refs.

1/1

- 20 -

USSR

UDC:669.184.244.66

KVITKO, M. P., SERGEYEVA, T. K., FILATOV, Yu. V., SINEL'NIKOV, V. A., and USTYUZHANIN, V. D.

"Study of the Oxygen-Fuel Process"

Proizvodstvo Chernykh Metallov [Production of Ferrous Metals--Collection of Works], No 75, Metallurgiya Press, 1970, pp 133-142

Translation: The possibility of increasing the thermal balance of a converter by preliminary heating of the scrap by burning of natural gas and oil in pure oxygen is studied on a 10 T converter. The expenditure of scrap melted using the fuel is 21.5-34.2% of the mass of the charge metal. The losses of heat due to chemical incompleteness of burning are estimated for various versions, and the effectiveness of the use of various types of fuel is considered. The utilization factor for natural gas is 24.0-86.0%, for oil 34.0-63.0%. 11 figures; 3 tables; 6 biblio. refs.

1/1

12   018   UNCLASSIFIED   PROCESSING DATE--02.....

TITLE--OBTAINING OF AND SOME PROPERTIES OF VIRULENT MUTANTS OF TEMPERATE PHAGES OF A POLYLYSOGENIC PROACTINOMYCES (NOCARDIA) FRUCTIFERI -U-

AUTHOR-(05)-RAUTENSHTEYN, YA.I., TIKHONENKO, A.S., SOLOVYEVA, N.YA., BELYAYEVA, N.N., FILATOVA, A.D.

COUNTRY OF INFO--USSR

SOURCE--IZVESTIYA AKADEMII NAUK SSSR, SERIYA BIOLOGICHESKAYA, 1970, NR 2, PP 272-282

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--PHAGE, ACTINOMYCES, ANTIBIOTIC, MICROORGANISM MUTATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1990/1376   STEP NO--UR/0216/70/000/002/0272/0282

CIRC ACCESSION NO--AP0109450
                        UNCLASSIFIED

IRC ACCESSION NO--AP0109450
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PROACTINOMYCES (NOCARDIA)
FRUCTIFERI 5339 CULTURE PROVED TO BE POLYLYSOGENIC, ALL THE TEMPERATE
PHAGES PRESENT IN THIS CULTURE HAVE SHOWN HIGH SENSITIVITY TO THE
ANTIBIOTIC RUBOMYCIN. AT A CONCENTRATION OF 140 GAMMA-ML OF A
RUBOMYCIN A 100PERCENT INACTIVATION OF ALL THE PHAGE PARTICLES TAKES
PLACE. TREATMENT WITH THIS ANTIBIOTIC AT CONCENTRATIONS EQUAL TO
0.25-20 GAMMA-ML ON FREE PHAGE PARTICLES OF THE EXPERIMENTAL CULTURE
AND TREATMENT OF THE LYSOGENIC CULTURE WITH CONCENTRATIONS OF 0.15-100
GAMMA-ML CAUSED THE APPEARANCE OF VIRULENT MUTANTS, ABLE TO LYSE THE
HOST CULTURE. SPONTANEOUS FORMATION OF VIRULENT MUTANTS WAS OBSERVED AS
WELL. COMPARATIVE INVESTIGATION OF THE VIRULENT MUTANTS SHOWED THAT
JUDGING BY THE MORPHOLOGY OF THE NEGATIVE COLONIES THEY MAY BE
SUBDIVIDED INTO SIX TYPES WHEREAS ACCORDING TO THE SPECTRA OF LYTIC
ACTION, ANTIGENIC PROPERTIES AND PHAGE MORPHOLOGY THEY FALL INTO THREE
DISTINCT TYPES. THE PHAGES OF THE SAME SEROTYPE ARE IDENTICAL AS TO
THE MORPHOLOGY OF THE PARTICLES. ON THE OTHER HAND IN SOME CASES
VIRULENT MUTANTS BELONGING TO THE SAME SEROTYPE MAY DIFFER AMONG
THEMSELVES WITH RESPECT TO NEGATIVE COLONIES MORPHOLOGY AND THE LYTYC
SPECTRUM CHARACTERISTICS. THE FINE STRUCTURE AND SIZE OF VIRULENT
MUTANTS PARTICLES ARE DESCRIBED ON THE BASIS OF RESPECTIVE ELECTRON
MICROPHOTOGRAPHS.   FACILITY: INSTITUTE OF MICROBIOLOGY, ACADEMY
OF SCIENCES USSR.   FACILITY: INSTITUTE OF MOLECULAR BIOLOGY
ACADEMY OF SCIENCES USSR.

·USSR

UDC $[537.226 + 537.311.33]$: $[537 + 535]$

BILEN'KIY, B. F., GERASIMCHUK, R. V., PASHKOVSKIY, M. V.,
SAVITSKIY, V. G., FILATOVA, A. K.

"Structure and Optical Characteristics of Thin HgTe-CdTe Film
Systems"

Vil'nyus, V sb. Tonkiye plenki soyedineniy tellura s metallami
podgrupp tsinka i galliya (Thin Films of Tellurium Compounds
With Metals of the Zinc and Gallium Subgroup -- collection of
works), 1970, pp 192-196 (from Rzh-Fizika, No 11, 1971, Abstract
No 11E1165)

Translation: Optical transmission spectra (OTS) of thin (0.03-
0.5μ) Cd and Hg telluride films as well as of their solid solu-
tions are investigated. The films were obtained by the method
of discrete vaporization of $Hg_xCd_{1-x}Te$ monocrystals ($x = 0$, 0.75,
0.80, 0.85, 0.90, 1.0). The OTS detected bands E_2 (5.40 ev) and
$E_1 + \Delta_1$ (4.05 ev) in CdTe films. OTS of HgTe films and solid
HgTe-CdTe solutions have a clear absorption band $E_2 + S$, whose
position does not change with an increase in content of the second
1/2

- 51 -

AL'KIY, B. F. et al, Tonkiye plenki soyedineniy tellura s
allami podgruppy tsinka i galliya, 1970, pp 1ya-1%6

,mponent.   It is assumed that the fundamental absorption spectra
n the case of complex systems of the type investigated can be
ased for controlling the composition of corresponding films.

2/2

1/2   036   UNCLASSIFIED   PROCESSING DATE--18SEP70
TITLE--INVESTIGATION OF INTENSITY OF A FOCUSED LASER BEAM PASSED THROUGH A
TURBULENT ATMOSPHERE -U-
AUTHOR-(03)-GELFER, E.I., FILATOVA, E.I., CHEREMUKHIN, A.M.

COUNTRY OF INFO--USSR

SOURCE--RADIOFIZIKA, IZV. VUZ. VOL. 13, NO. 2, 1970, P. 271-274

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--LASER BEAM, LASER THEORY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1979/1698   STEP NO--UR/0141/70/013/002/0217/0274

CIRC ACCESSION NO--AP0048016
                         UNCLASSIFIED

CIRC ACCESSION NO--AP0048016
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE INTENSITY IN A FOCAL PLANE OF
  THE FOCUSED LASER BEAM PASSED THROUGH A TURBULENT ATMOSPHERIC LAYER WAS
  INVESTIGATED. THE AREAS OF INTENSITY OVERSHOOTS HAVE BEEN MEASURED AT
  DIFFERENT LEVELS OF ITS RELATIVELY PERFECT DIFFRACTION MAXIMUM AND AT
  DIFFERENT VALUES OF FLUCTUATIONS OF THE REFRACTIVE INDEX OF THE AIR.

USSR

UDC: 541.64:678.86

YAKUBOVICH, A. YA. (DECEASED), FILATOVA, I. M., ZAYTSEVA, V. S., YAKUBOVICH, V. S., Scientific Research Physico-Chemiscal Institute imeni L. YA. Karpov, Moscow, State Committee for Chemistry

"Reaction Scheme and Peculiarities of Polycondensation of Alkyl(aryl)phosphazenechlorophosphonyls"

Abstract: The behavior of some 1-dichlorophosphonyl-2,2,2-alkyl(aryl)chlorophosphazenes was studied at high temperatures to determine the mechanism of condensation of compounds in this series to polyphosphazenes. It was found that 1-dichlorophosphonyl-2,2,2-diphenylchlorophosphazene remains unchanged with no conversion to polyphosphazenes when heated to 320°C. When this compound is heated together with 1-dichlorophosphonyl-2,2,2-trichlorophosphazene, a polychlorophosphazene is formed which contains chlorodiphenylphosphazene groups as substituents. In analogous experiments, 1-dichlorophosphonyl-2, 2,2-triethylphosphazine forms a polychlorophosphazene which contains triethylphosphazene groups as substituents of the principal polymer chain. It is shown that heating linear polydichlorophosphazenes with 1-dichlorophenyl-2,2,-

1/2

USSR

YAKUBOVICH, A. YA., et al, Vysokomolekulyarnyye Soyedineniya, Vol XII, No 3, Mar 70, pp 585-591

2-diphenylchlorophosphazene initiates a reaction with substitution of chloro-diphenylphosphazene radicals for chlorine atoms and release of phosphorus chloroxide. With an excess of 1-dichlorophosphonyl-2,2,2-diphenylchloro-phosphazene, the maximum substitution reaches 50% of the total chlorine content in the polydichlorophosphazene. A reaction scheme is proposed for thermal condensation of 1-dichlorophosphonyl-2,2,2-alkyl(aryl)chlorophos-phazenes to polyphosphazenes as a two-stage process with formation of the polydichlorophosphazene on the first stage, and substitution of a chloralkyl(aryl) substituted phosphazene radical for the chlorine atoms in the compound in the second stage.

2/2

TITLE--REACTION SCHEME AND NATURE OF THE POLYCONDENSATION OF
   CHLOROPHOSPHONYL,ALKYL,ARYL,PHOSPHAZENES -U-

AUTHOR-(04)-YAKUBOVICH, A.YA., FILATOVA, I.M., ZAYTSEVA, YE.L.,
   YAKUBOVICH, V.S.

COUNTRY OF INFO--USSR

SOURCE--VYSOKOMOL. SOEDIN., SER. A 1970, 12(3), 585-91

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--POLYCONDENSATION, CHLORINATED ORGANIC COMPOUND, ORGANIC
   PHOSPHORUS COMPOUND, NITROGEN COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3007/0718   STEP NO--UR/0459/70/012/003/0585/0591

CIRC ACCESSION NO--AP0136157
                         UNCLASSIFIED

2/2   020   UNCLASSIFIED
CIRC ACCESSION NO--AP0136157   PROCESSING DATE--04DEC70
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE CONDENSATION MECHANISM OF THE
TITLE COMPDS. WAS STUDIED AT ELEVATED TEMPS. PH SUB2 PCL DOUBLE BOND
NP(O)CL SUB2 (I) FAILED TO GIVE POLYPHOSPHAZENES EVEN WHEN HEATED TO
320DEGREES, HOWEVER, WHEN I WAS HEATED WITH CL SUB3 P DOUBLE BOND
NP(O)CL SUB2 (II) POLY(CHLOROPHOSPHAZENES((III, X EQUALS PH, Y EQUALS
CL) WERE FORMED. ET SUB3 P DOUBLE BOND NP(O)CL SUB2 REACTED WITH II TO
GIVE III (X EQUALS Y EQUALS ET). WHEN LINEAR
POLY(DICHLOROPHOSPHAZENES(, CL(PCL SUB2 DOUBLE BOND N) SUBN P(O)CL SUB2,
WERE HEATED WITH I, CLPPH SUB2 DOUBLE BOND N-RADICALS WERE SUBSTITUTED
FOR CL ATOMS WITH THE EVOLUTION OF POCL SUB3. A THERMAL CONDENSATION
MECHANISM WAS PROPOSED.   FACILITY: FIZ.-KHIM. INST. IM. KARPOVA,
MOSCOW, USSR.

UNCLASSIFIED

FILATOVA, I. V.

PROBLEM OF OBTAINING MONOCRYSTALLINE LAYERS OF SILICON BY THE EPITAXIAL METHOD

The development of the technological process for manufacturing in-struments in semiconducting monocrystalline layers deposited on an insulating sub-strate has great significance for the creation of joint integrated circuits.

For the first time, the so-called rheotaxial method of obtaining mono-crystalline silicon layers was proposed by Karmanis [1, 2]. Its physical essence consists in the deposition of monocrystalline films on a polycrystal-line substrate using an intermediate liquid layer.

We have performed studies of the possibility of obtaining monocrystal-line layers of silicon by the reduction of silicon tetrachloride by hydrogen on polycrystalline insulating substrates coated with glass of complex compo-sition. In order to discover the effect of the material and the substrate structure on the rheotaxial process, we used monocrystalline silicon as the substrate and also monocrystalline silicon coated with a layer of SiO_2 0.8-0.9 microns thick.

When selecting the polycrystalline insulating substrate which satisfies the requirements of the rheotaxial method, we discussed ceramics of the homo-geneous and polymers type.

We selected as the glass for an intermediate liquid level is one of the main problems of the rheotaxial method of growing monocrystalline silicon films. The following requirements are, in our opinion, imposed on the glass.

1. The glass must not contain impurities of III and V group elements of the periodic table.

2. The coefficient of thermal expansion of the glass must correspond to the coefficient of thermal expansion of silicon ($\sim$40-46.10^{-7} deg^{-1}).

3. At a temperature below 1,000° C the glass must be in the liquid state.

- 113 -

USSR   UDC: 661.143

MANDRUGIN, V. A., SAVUKHINA, T. A., FILATOVA, I. A., KRAVKOVA,
I. A., VAVILOV, V. A., DANILOV, V. P.

"Investigation of Electrophosphors of the CRT Type"

Sb. nauch. tr. VNII lyuminoforov i osobo chist. veshchestv (Col-
lected Scientific Works of the All-Union Scientific Research
Institute of Phosphors and Extra Pure Materials), 1971, vyp. 5,
pp 73-82 (from RZh-Khimiya, No 7, Apr 72, Abstract No 7L184)

Translation: Electrofluorescent compositions of yellow, blue, green and red
luminescence colors are developed with a granulometric composition of 95-97%
particles of less than 12 microns and a maximum particle size of 25 microns or
less having a brightness of up to 170% of the standards at the "Energiya Plant"
Plant. A technique is developed for making electroluminescent devices with a
voltage of 115 V at a frequency of 400 Hz. Bibliography of 6 titles. Rena.

1/1

1/2   016   UNCLASSIFIED   PROCESSING DATE--18SEP70
TITLE--HYDRODYNAMIC FLUCTUATIONS IN A RELAXING MEDIUM -U-

AUTHOR-(03)-ROMANOV, V.P., SOLOVYEV, V.A., FILATOVA, L.S.

COUNTRY OF INFO--USSR

SOURCE--ZHURNAL EKSPERIMENTAL'NOY I TEORETICHESKOY FIZIKI, 1970, VOL 58,
  NR 3, PP 887-896
DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--HYDRODYNAMIC PROPERTY, LIGHT SCATTERING, ENTROPY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1977/0067   STEP NO--UR/0056/70/058/003/0887/0896

CIRC ACCESSION NO--AP0043683
                          UNCLASSIFIED

UNCLASSIFIED   PROCESSING DATE--18SEP70
CIRC ACCESSION NC--AP0043683
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AN ANALYSIS OF THE SPECTRAL
  INTENSITIES OF FLUCTUATIONS IN AN ISOTROPIC MEDIUM IN THE PRESENCE OF
  INTERNAL RELAXATION PROCESSES IS PRESENTED. IS IST IS SHOWN THAT IN
  THIS CASE ONLY FLUCTUATICNS OF THE GENERALIZED COORDINATES CAN BE
  DETERMINED WHEREAS FLUCTUATIONS OF THE GENERALIZED FORCES CANNOT BE
  FOUND. ONE CONSEQUENCE OF THIS IS THAT THE RYTOV RESULTS (PRIME3 TO
  PRIME5) FOR A DISPERSIVE MEDIUM ARE ERRONEOUS. DENSITY AND ENTROPY
  FLUCTUATIONS WHICH AFFECT LIGHT SCATTERING ARE CALCULATED FOR SUCH
  MEDIA.

UNCLASSIFIED

Aeronautical and Space

USSR

UDC: 528.022.2

AYLAMAZYAN, A. K., BUNYAKIN, S. V., TARASOV, V. S., FILATOVA, O. N.

"An Angle-of-Attack Meter"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 9, Mar 72, Author's Certificate No 331242, Division G, filed 24 Nov 70, published 7 Mar 72, p 114

Translation: This Author's Certificate introduces an angle-of-attack meter which contains a high-pressure receiver whose static pressure chamber is connected to a static and dynamic pressure pickup, while the total pressure chamber is connected to a dynamic pressure pickup, and auxiliary chambers which sense pressures along the upper and lower generatrices of the receiver nozzle are connected to the cavities of a differential pressure pickup. The meter also contains a scale with sliding index. As a distinguishing feature of the patent, precision is improved by connecting a source of information on the magnitude of the Mach number of the air signal systems to the supply winding of the inductive unit of the differential pressure pickup through a summing transformer. The output winding of the differential pickup is connected through a decoupling amplifier to the sine winding of a sine-cosine

1/2

USSR

AYLAMAZYAN, A. K. et al., USSR Author's Certificate No 331242

rotary transformer whose cosine winding is connected to the output of the dynamic pressure pickup amplifier. The output winding of the rotary transformer is connected through an amplifier to the motor of a servosystem which is kinematically connected to the pointer index.

2/2

- 130 -

Acc. Nr: AP0044016

Ref. Code: UR 0240

PRIMARY SOURCE: Gigiyena i Sanitariya, 1970, Nr 2, pp 26-30

HYGIENIC WORK CONDITIONS AND HEALTH STATUS OF WORKERS ENGAGED IN PRODUCTION OF TOLUENEDIAMINE

V. S. Filatova, A. Ya. Tubina, Z. V. Sharonova, I. A. Golova,
V. I. Filina, Dorofeyeva, Ye. D.

While obtaining toluenediamine by using Baier's method the air of work shops can be polluted with toluenediamine, methanol, o-dichlorobenzene and dinitrotoluene. The two lastly named substances could not be traced in most of the samples. The most commonly encountered TDA and methanol concentrations were below the maximally permissible levels. Materials derived from these investigtions bring evidence that continuous method of TDA production with remote and automatic control of technological operations and the equipment employed for this purpose deserve high appraisal. The study of the workers' health status revealed mildly pronounced pathological shifts on the level of nervous system, blood and liver.

REEL/FRAME

19770453

Pulse Technique

USSR

~~FILATOVA   Ye. A.~~

UDC: 621.372.8

"Solving the Dispersion Problem of the Propagation of Symmetrical Magnetic Waves in a Rectangular Waveguide Filled With a Nonuniform Plasma by the Modeling Method"

Kiev, Izvestiya VUZ SSSR—Radioelektronika, No 6, 1972, pp 804-805

Abstract: The purpose of this brief communication is to demonstrate how the modeling method used in an earlier paper for solving various waveguide problems involving monochromatic oscillations (Pukhov, V. V. et al, Modeli s sosredotochennymi parametrami dlya izucheniya elektromagnitnykh poley, Voprosy radioelektroniki (Models with Lumped Parameters for Studying Electromagnetic Fields, Problems in Electronics) Series 1, "Elektronika," 1961, No 2) can be applied to pulse problems. For this purpose, the original equations used are those of Maxwell and of Helmholtz, written in the operative form. These are applied to the case of the propagation of symmetrical magnetic waves through a rectangular waveguide filled by a plasma with losses, a specified dielectric permeability and conductivity which vary longitudinally along the waveguide axis and transversely to it. The model may be used to investigate the change in a pulse signal of any form and duration inside or outside a nonuniform, dispersive medium.
1/1

USSR

MITROPOL'SKIY, Yu. A., Academician of the Ukrainian SSR Academy of Sci-
ences, FIL'CHAKOV, P. F., Institute of Mathematics, Ukrainian SSR Academy
of Sciences, Kiev

"Using Series to Solve Nonlinear Differential Equations With a Deviating
Argument"

Abstract: A useful method of solving equations with a deviating argument
is the method of steps which reduces the given problem to solution of an
analogous problem for a sequence of ordinary differential equations. In
this paper the authors propose an effective method for using series to
solve this latter problem, utilizing the Cauchy formula and the appro-
priate notation.

1/1

USSR

FIL'CHAKOV, Corresponding Member of the Ukrainian Academy of Sciences P. F.;
SUKENNIK, A. A. (Institute of Mathematics, Ukrainian Academy of Sciences)

"Determining the Eigenvalues of One-Parameter Problems by the Power Series
Method"

Kiev, Dopovidi Akademii Nauk Ukrains'koi RSR: Seriya A - Fizyko-Tekhnichni ta
Matematychni Nauky; October, 1971; pp 891-4

ABSTRACT: The article concerns the problem of eigenvalues for the differential

equation $$y^{(n)} + P_1(x, \lambda) y^{(n-1)} + \ldots + P_n(x, \lambda) y = P(x, \lambda).$$ (1)

with boundary conditions $$\sum_{k=0}^{n-1} \alpha_{ki} y^{(k)}(a) + \sum_{k=0}^{n-1} \beta_{ki} y(b) = \gamma_i \quad (i = 1, 2, 3, \ldots m \geq n);$$ (2)

1/2

USSR

FIL'CHAKOV, P. F. and SUKENNIK, A. A., Dopovidi Akademii Nauk Ukrains'koi RSR: Seriya A - Fizyko-Tekhnichni ta Matematychni Nauky, October 1971, pp 891-894

where the coefficients α_{ki}, β_{ki} also can depend on λ. The solution of differential equations (1) is sought in the form of the power series

$$y = \sum_{v=0}^{\infty} a_v (x - x_0)^v. \tag{3}$$

By means of equations (2) and (3) the authors obtain an infinite system of algebraic equations which determines the coefficients a_0, a_1, a_2, ..., a_{n-1} and the parameter λ. The method of calculation is illustrated by examples.

There are two references.

2/2

USSR

FILCHAKOV, Corresponding Member Ukrainian Academy of Sciences P. F.; et al
(Institute of Mathematics, Ukrainian Academy of Sciences; Ukrainian Scientific
Research Institute of Trade and Public Nutrition)

"Interpolation of Functions of Two Independent Variables by Means of Electrical
Simulation and Its Application for Predicting the Provision of the Public with
Certain Goods"

Kiev, Dopovidi Akademii Nauk Ukrains'koi RSR: Seriya A - Fiziko-Tekhnichni
ta Matematichni Nauki; April, 1970; pp 334-6

Δ Δ Δ

ABSTRACT: The application of simulation on electrically conducting paper with
an electrohydrodynamic analog integrator for the interpolation of functions of
two independent variables is considered. The interpolation is physically
accomplished by connecting a network of points on the electrically conducting
paper to "point" sources from the divider of the integrator. It is shown that
in this way the interpolation of functions of two independent variables is
represented on the paper by harmonic polynomials.

1/2

- 94 -

USSR

FIL'CHAKOV, P. F., et al., Kiev, Dopovidi Akademii Nauk Ukrains'kol RSR; Seriya A - Fiziko-Tekhnichni ta Matematichni Nauki; April 1970, pp 334-336

Combining the method of interpolation of functions of two variables by means of electrical simulation with an extrapolation of it beyond the limits of the region of interpolation makes it possible to solve on electrically conducting paper problems of prognosis. In particular, the authors consider the prediction of making available to the general public certain goods, depending on the price of the items and the income of the public.

The article includes 2 tables. There are 2 references.

2/2

USSR

FIL'CHAKOV, Corresponding Member Ukrainian Academy of Sciences P. F.;
SINYAVSKIY, N. I. (Institute of Mathematics, Ukrainian Academy of Sciences;
Kiev State University)

"Determination of the Type of Singular Points of Solutions to Nonlinear Dif-
ferential Equations"

Abstract: The solution to systems of nonlinear differential equations is given
in the form of power series. Singular points of the solutions to the equations
are determined with any degree of accuracy by the ratio of the coefficients and
zeros of the "inverse" functions.

    At points of a closed curve of a complex region bounding a singular point
which has been found the authors find the solution of the given system, which
is then used in the initial conditions to study the solution in different ap-
proximations to the singular point.

    The type of singular point is determined by the behavior of the solutions

1/2

USSR

FIL'CHAKOV, P. F., et al., Dopovidi Akademii Nauk Ukrains'koi RSR: Seriya A - Fizyko-Tekhnichni ta Matematychni Nauky, June 1970, pp 504-507

near it. If the singular point is positive, the order is determined from the behavior of the solution in its vicinity in the form of a generalized power series.

The article includes one table, two figures, and four references.

2/2

AA0043513   F   UR 0482

Soviet Inventions Illustrated, Section II Electrical, Derwent, 1/70

226998 GUIDE FOR ULTRASONIC OSCILLATOR for increas-
ing the efficiency and for automatizing the
process of adjustment; it contains moveable and
fixed mountings, each containing two balls supported
on radial thrust bearings by the lever arms. The
housing of the fixed mounting can be revolved around
the axis perpendicular to the cylinder of the
oscillator. Between the lever arms (7-8), which
squeeze the oscillator between the balls changing
its tightness, a dynamometer (16-17-18) is mounted
with micrometric screw (19-20) for adjusting the
levers according to data displayed on the table (21)
for the specified job.

30.3.66 as 1065392/25-27. A.A.FIL'CHENKOV (24.6.69)
Bul 8/12.2.69. Class 42s. Int.Cl.B 06 c.

1/2   2/

19761916

AA0043513

Фиг. 2

2/2

19761917
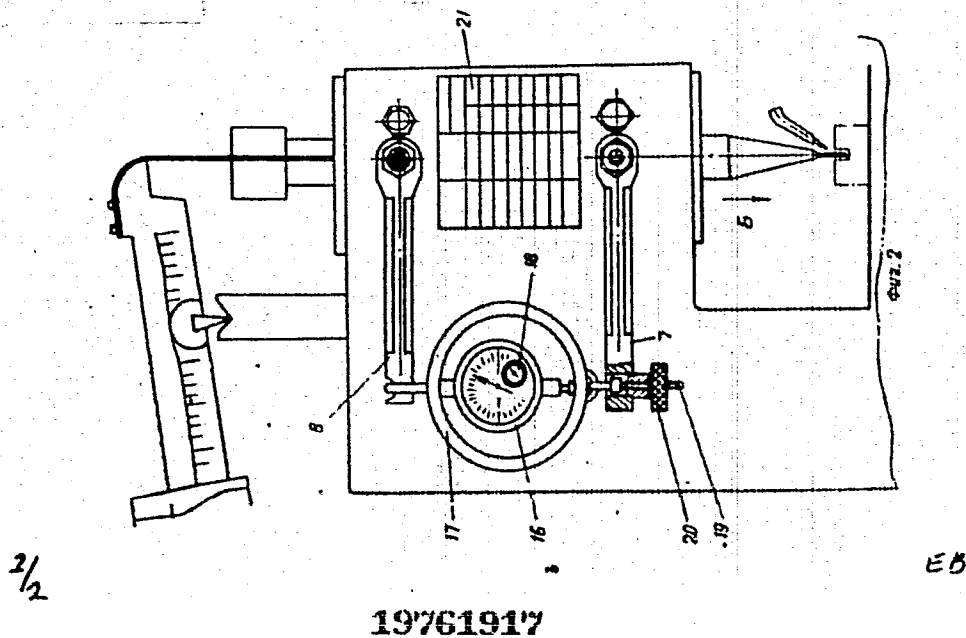
USSR

BATRAKOV, Yu. V., FILENKO, L. L.

"Motion of an Earth Satellite Under the Effect of Perturbations From Tesseral Harmonics"

Translation: The authors investigate analytical expressions for first-order perturbations in elements of the orbit of an artificial Earth satellite caused by tesseral harmonics in the expansion of the earth's gravitational potential in spherical functions with numbers $k, l \leqslant 4$. The coefficients of the trigonometric terms of these expressions are represented as finite polynomials in powers of the sines and cosines of the orbital inclination, and as segments of series in powers of the eccentricity accurate to e^4. Resumé.

1/1

USSR   UDC: 537.311

ANTONOV, YE. A., GNATYUK, L. N., STEPANOV, B. M., FILENKO, YU. I., and
TSARFIN, V. YA., Moscow

"Study of the Electric Explosion of Conductors by the Holography Method"

Abstract: Experiments have been reported on the registration of various stages
of the explosion of conductors [EC] in air and in water by the usual dual team
system using holographic method of double exposure. From the data obtained the
rate of the scattering of fragments has been determined to be about 150 m/sec,
the velocity of the shock wave -- 500 m/sec, and the concentration of electrons
in the plasma -- $N_{e_{max}}$ $4.8 \cdot 10^{18}$ cm^{-3}. The holographic method is by far more
universal and promising than the photographic method for the registration of
the phenomena accompanying EC. The size of the subject being studied, the
ability to study EC independently of the specific luminescence of the object,
no requirements placed on high quality optical elements in the systems forming
radiation streams, all these aspects favor holography for the registration of
rapid processes occurring during electric EC.

1/1

Pulse Technique

"Study of Discharge in Pulse Tubes by the Holographic Method"

Abstract: A study was made of the discharge of a pulse tube with an inside diameter of 7 mm, electron spacing of 30 mm, filled with xenon to a pressure of 400 mm Hg by the holographic method. The double exposure method was employed to obtain the holographic interferograms. The holograms were recorded on photographic plates with a sensitivity of 10^{-4} joules/cm^2 ($\lambda = 7 \cdot 10^{-5}$ cm) and a resolution of > 200 lines/mm. The effect of the thermal deformations of the shell during the first 200-300 microseconds of discharge on the interference pattern is insignificant. At later times the separation of the contribution of the plasma and the thermal deformations of the shell to the interference pattern presents great difficulty. During the first several tens of micro-seconds the discharge occupies an insignificant part of the shell cross section and it has higher electron concentration and temperature. Then it expands to the walls, but the total number of electrons in the cross section changes in-significantly. In the presented discharge interferograms with distribution of the index of refraction close to axisymmetric, the distribution is close to the type of $\Delta n_1 = \Delta n_{01} [1 - (r^2/r_1^2)]$ and $\Delta n_2 = \Delta n_{02} [1 - (r/r_2)]$ where Δn_{0i} is 1/2

USSR

GINZBURG, V. M., et al., Radiotekhnika i Elektronika, Vol 17, No 10, pp 2219-2220

the variation of the index of refraction on the discharge axis and r_i is the radius of the plasma region. A numerical example is considered in which the effect of forcing the neutrals out of the discharge region is estimated. The basic errors in the quantitative estimates are connected with deviation of the distributions from axial symmetry.

The results obtained for a quasistationary discharge agree with the results obtained using a three-mirror interferometer under the assumption of uniform distribution of the electron concentration with respect to the tube cross section. The advantage of the introduced method is the possibility of investigating the initial discharge stages in pulse tubes where the three-mirror interferometer is inapplicable.

2/2

USSR

BATRAKOV, Yu. V. and FILENKO, L. L.

"The Motion of an Artificial Earth Satellite Under the Action of Disturbances From Tesseral Harmonics"

Translation: Tesseral harmonics of the potential of terrestrial gravity introduce a perceptible contribution to the disturbed motion of an artificial Earth satellite. It is therefore naturally of interest to develop methods for taking disturbances from these harmonics into account, as well as to derive formulas for these disturbances. There is the well-known work of B. Kaula (1961), in which was obtained a general formula for expanding the tesseral perturbation function into elements of the orbit, which is formally applicable for any eccentricities smaller than unity. The general formulas of Kaula are, however, rather bulky and their use is not always convenient when it is necessary to evaluate the disturbances from a small number of tesseral harmonics (with small values of k, ℓ). In some works, analytic

1/3

expressions are presented for the disturbances of sputniks from tesseral harmonics; however, in these works the degree of accuracy in taking eccen- tricities into account is, as a rule, not very great. In the work of J. Kozai, for example, only the long-period terms are retained; this cor- responds to the case of taking into account only terms containing eccentricity in the zeroth degree. G. A. Ustinov (1967) gives formulas for taking tesseral disturbances into account also with an accuracy to the zeroth degree of ec- centricity. Formulas of such a type are very convenient for an approximate evaluation of the disturbances. In a number of cases, however, for example in the case of the motion of a sputnik in the resonance region, more exact accounting of the disturbances becomes necessary.

Explicit expressions are obtained for disturbances from tesseral harmonics with numbers k, $\ell \leq 4$ with higher accuracy with respect to eccentricity, namely all terms are taken into account to e^4 inclusively. The results are presented in the form of tables, and are convenient for calculations
2/3

- 6 -

USSR

BATRAKOV, YU. V. and FILENKO, L. L., Byul. In-Ta Teor. Astron. AN SSSR, Vol 13, No 2, 1972, pp 73-91 (from Referativnyy Zhurnal, Issledovaniye Kosmiches-kogo Prostranstva, No 5, May 72, Abstract No 5.62.312, From Resume)

of the influence of various terms, as well as for taking disturbances from harmonics with k, $\ell \leq 4$ into account. Harmonics with $k = 1$ are excluded from consideration, since they do not cause dynamic effects. 5 references.

3/3

USSR

UDC 772.99

FILENKO, Yu. I., All-Union Scientific Research Institute of Opticophysical Measurements

"A Hologram Portrait, Restorable in White Light"

Abstract: Experiments in obtaining hologram portraits have, up to now, been conducted by means of lasers, with a radiation energy of about 3 joules, great attention being devoted to protection of the eye retina against radiation damage. An illustration appearing in the article shows a front-view hologram photograph of a human face, with open eyes, taken at an energy of 200 millijoules for the illumination flux and 3 millijoules for the reference flux, restored by illuminating the hologram by a mercury lamp. Reference is made to a series of hologram portraits, including a group portrait of three persons, restored in monochromatic light. 1 figure, 4 references.

1/1

USSR

GINZBURG, V. M., and FILENKO, YU. I.

"Effect of Light Beam Refraction in Holographic Interferometry of Phase Objects"

Leningrad, Zhurnal Tekhnicheskoy Fiziki, Vol 40, No 10, Oct 70, pp 2217-2220

Abstract: The article analyzes the effect of beam refraction on the interference pattern obtained by the holographic method for phase objects with axial symmetry. The results indicate that in the interpretation of holographic interferograms of phase objects, within whose limits expected variations in the refractive index exceed 5-10 percent, allowance must be made for beam refraction inside the object. In the diagnosis of a plasma in gas-discharge devices by the method of holographic interferometry, failure to make allowance for beam refraction in the plasma does not lead to errors if the electron concentration within the limits of the entire discharge satisfies the condition $\lambda^{-3} \ll N \leqslant 0.1 \, N_{cr}$.

1/1

USSR

UDC: 539.121.72

VOROB'YEV, A. A., AREF'YEV, K. P., BOROV'YEV, S. A., FILEV, A. Ya., Tomsk
Polytechnical Institute imeni S. M. Kirov

"Capture of Positrons by F-Centers in Tempered Crystals"

Abstract: Curves of angular correlation of gamma quanta were measured in
KCl and NaCl single crystals to determine the influence which tempering of
colored crystals has on the process of annihilation of positrons. Angular
resolution was approximately 1 mrad with a measurement accuracy of at least
3%. Crystals measuring 20 x 30 x 1 mm were tempered by cooling from 700°C on
a massive copper sheet in air. The results of the experiment confirm the
possibility of positron capture by color centers induced in crystals by
various methods. The method of positron annihilation is apparently an
indicator of color centers which are localized on dislocations and other
structural defects.

1/1

USSR

UDC 621.762,669.71

KOTIYEVA, L. U., FILICHKINA, M. P., and KOCHETKOV, P. G., Moscow Aviation
Technological Institute

"Study of the Effect of the Mineralization Agent on Properties of SAP Products"

Ordchonikidze, Izvestiya Vysshikh Uchebnykh Zavedeniy, Tsvetnaya Metallurgiya,
No 1, 1973, pp 145-149

Abstract: In order to increase the mechanical properties of products made
of SAP (sintered aluminum powder), an attempt was made to increase the con-
centration of α-Al_2O_3 phase in the Al powder by adding to it the mineraliza-
tion agent AlF_3. Aluminum powder with AlF_3 was subjected to sintering at
823°C for 3-8 hours and the percentage of oxide phases in it was measured.
The obtained results showed that the addition of 3 wt.% AlF_3 to Al powder
increased the quantity of oxide phases by 1.5-3%, with predominant granule
fractions of -0.074 + 0.044 mm after sintering at 823°C. At this temperature
AlF_3 reacts directly with $AlO(OH)$ and $Al(OH)_3$ by forming α-Al_2O_3 small
crystals, which become crystallization centers capable of producing α-Al_2O_3
phase during the recrystallization heating. Reactions of AlF_3 with $AlO(OH)$ and
1/2 $Al(OH)_3$ also produces HF, which reacts directly with γ-Al_2O_3 and transforms

USSR

KOTIYEVA, L. U., et al., Izvestiya Vysshikh Uchebnykh Zavedeniy, Tsvetnaya Metallurgiya, No 1, 1973, pp 145-149

it into the α-Al_2O_3 phase. Without HF this transformation would be impossible. In the presence of AlF_3 in Al powder, a transformation of $Al(OH)_3$ into $AlO(OH)$ takes place at room temperature in hermetically sealed containers, which would be possible only at 583-625°C without the mineralization agent AlF_3. When samples of Al powder with 3 wt.% AlF_3 were heated at 823°C for 6 hours, the tensile strength of samples was within 28-42 kg/mm^2, and the relative elongation within 8-15%, compared with 22-40 kg/mm^2 and 3-7%, respectively, without AlF_3. The best mechanical properties of SAP samples were obtained with powders containing - 0.074 + 0.044 mm particles. SAP products containing AlF_3 mineralization agent can also be welded.

2/2

UNCLASSIFIED   PROCESSING DATE--18SEP70
TITLE--METHOD FOR THE LOCAL IRRADIATION AND INVESTIGATION OF THE WEAR
  RESISTANCE OF DRILLS -U-
AUTHOR-(02)-POLKOVNIKOVA, A.G., FILKIN, V.M.

COUNTRY OF INFO--USSR

SOURCE--MOSCOW, IZVESTIYA VYSSHIKH UCHEBNYKH ZAVEDENIY, MASHINOSTROYENIYE,
  NO. 1, 1970, PP 134-138
DATE PUBLISHED--------70

SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--WEAR RESISTANCE, METAL DRILLING, RADIOACTIVE TRACER, CADMIUM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1985/0519   STEP NO--UR/0145/70/000/001/0134/0138

CIRC ACCESSION NO--AT0100979
                         UNCLASSIFIED

CIRC ACCESSION NO--AT0100979

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ARTICLE DESCRIBES A METHOD FOR
THE LOCAL IRRADIATION OF DRILLS, IN AN ATTEMPT TO STUDY DRILL WEAR. FOR
THIS STUDY, A SPECIAL CADMIUM CASING WAS DESIGNED TO PROTECT THE DRILLS
FROM THERMAL NEUTRONS AND TO PROVIDE FOR IRRADIATION OF ONLY THE CUTTING
TIP OF THE DRILL. A SIGNIFICANT DIFFERENCE IN THE SPECIFIC
RADIOACTIVITY OF THE PROTECTED AND UNPROTECTED PORTIONS OF THE DRILL WAS
NOTICED (1:100), AND THE CASING EFFECTIVENESS WAS CHECKED BY
RADIOCHEMICAL ANALYSIS. IT WAS THEN POSSIBLE PRACTICALLY TO ELIMINATE
THE EFFECT OF FLUTE WEAR ON CHIP RADIOACTIVITY. IN THE TESTS, 80
CAREFULLY SELECTED STANDARD DRILLS WERE USED TO DEPTHS OF 15 MM WITHOUT
LUBRICATION. THE DRILLS WERE IRRADIATED FOR 22 HOURS IN A NEUTRON FLUX
OF 0.12 TIMES 10 PRIME13 N-CM PRIME2 TIMES SEC. THE AMOUNT OF DRILL
WEAR WAS DETERMINED BY MEASURING THE RADIOACTIVITY OF 20 GRAMS OF CHIP
CURL WITH A GEIGER COUNTER, THUS YIELDING A RELATIVE INDICATION OF WEAR.
TO DETERMINE THE WEIGHT VALUE OF THE WEAR, A FORMULA IS DERIVED WHICH
COMPARES CHIP RADIOACTIVITY AND WEIGHT AGAINST AN IRRADIATED SAMPLE OF
THE DRILL MATERIAL. GRAPHS ARE SHOWN WHICH REFLECT WEAR BASED ON THE
NUMBER OF HOLES DRILLED, CHANGES IN DRILL SPEED, AND FEED. THE TESTS
SHOWED THAT WHEN DRILLING 60-100 HOLES, DURING THE INITIAL PERIOD, WEAR
IS INTENSIVE, AND DROPS OFF SMOOTHLY AND BEGINS TO STABILIZE AFTER ABOUT
60 HOLES. ONE OF THE GRAPHS SHOWS THE PRESENCE OF A RANGE OF DRILLING
SPEEDS FOR WHICH WEAR IS MINIMAL.

UNCLASSIFIED

UDC 535.37:621.375.8

USSR

BOL'SHOV, M. A., GUZEYEV, I. D., ZYBIN, A. V., KOLOSHNIKOV, V. G., MAYOROV, I. A., NEDLER, V. V., MANDEL'SHTAM, S. L., TIMOFEYEV, Ye. F., and FILIMINOV, L. N.

"Determining Small Na Concentrations by the Fluorescence Resonance Method Using Tunable, Pulsed Dye Lasers"

Minsk, Zhurnal Prikladnoy Spektroskopii, November 1973, pp S21-824

Abstract: The subject of this article involves the method of fluorescence resonance in the use of tunable radiation dye lasers for detecting small concentrations of elements. Experiments designed to demonstrate the possibilities of this method in the saturation mode of resonance transition with Na as the element to be detected are described. For the excitation of the Na vapor a rhodamine laser of the 6Zh type, pumped by the second harmonic radiation of a neodymium laser, was employed. The duration of the pulses was $2 \cdot 10^{-8}$ sec, their power was 10^5 W, the width of the fluorescence line was 1 Å, and the tunable range 5600-6700 Å, with an interval of 30-77 between scintillations. The ZhS-3 was used as chronister. A block diagram of the equipment is given, together with a curve for the amplitude of the

1/2

USSR

BOL'SHOV, M. A., et al., Zhurnal Prikladnoy Spektroskopii, November 1973, pp 821-824

fluorescence signal varying with time. The authors find that using a laser with high scintillation repetition rates and increasing the light power increase the sensitivity of the element detection.

2/2

USSR

UDC 537.311.33:546.28/289

AFANAS'YEV, V.N., STEPOVIK, A.P., TUTUROV, YU.F., FILIMONCHEVA, P.I.

"Measurement Of The Lifetime Of Carriers In Germanium And Silicon During Neutron Irradiation"

Translation: It is experimentally established that the radiative constant in Ge and Si during neutron irradiation with an energy of 14 Mev is decreased with a reduction of temperature. 6 ref. Summary.

1/1

USSR   UDC 621.9.048.4:669.018.25

MUKHANOV, I. I., FILIMONENKO, V. N, and PIVOVAROV, B. Kh., Novosibirsk
Electrical Engineering Institute

"Physical and Mechanical Condition of the Surface Layer of Hard Alloy
Products After Electric Spark Treatment"

Abstract: Results are presented from a study of the physical and mechanical
state of the surface layer of hard alloy products made of alloys in group
WC after treatment by electric spark tools operating in the RC generator
mode. A metallographic study of the surface layer after electric spark
treatment showed that there was a fused layer present, which arises even
when there are no cracks on the surface. The fused layer is divided into
two zones. The upper zone has a finely dispersed structure, resulting from
rapid cooling of the fused alloy. The lower zone shows unmelted grains of
tungsten carbide.

1/1

AA0047085   F   UR 0482

Soviet Inventions Illustrated, Section II Electrical, Derwent,

2/70

241516 CONVERTER SUBSTATION FOR HIGH-VOLTAGE D.C.
TRANSMISSION is made more reliable. It employs
a reserve block (1) which is connected in the middle of
the converter system. Normally the reserve block is
shorted (2) and earthed via switchgears (3,4). In case
of a unit is damaged it is shorted by its own switch
(5) and switchgear (4) is automatically opened followed
by the removal of short (2) from the reserve unit. If
a unit is to be removed from the right-hand side switch
(6) and switchgear (3) are operated.
25.1.65 as 940712/24-7.A.N.FILIMONOV et al.(19.9.69)
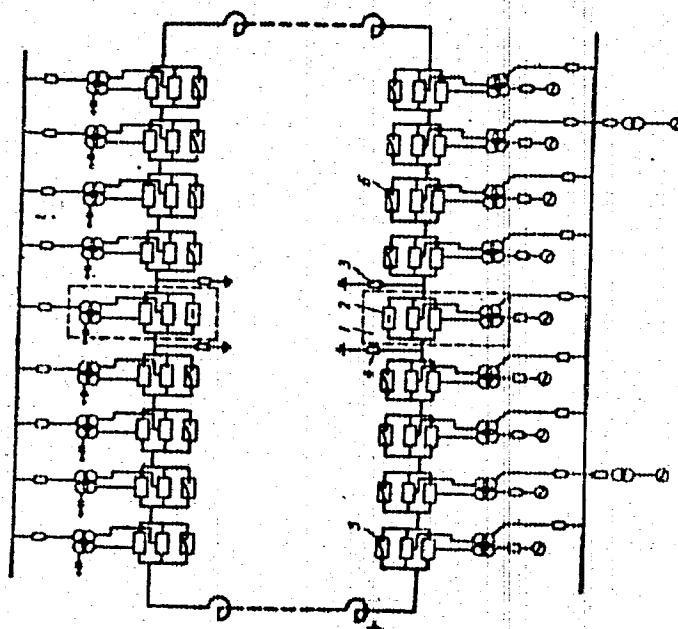Bul 14/18.4.69. Class 21d^1. Int.Cl.H 02j.

AUTHORS: Filimonov, A. N.; Kegeles, M. B.; Malkin, P. A.

4

19790562

AA0047085

19790563

FILIMONOV, A. P.

SG: JPRS 59254
12 June 73

DIANE

NULL SHIFT IN STABILIZATION ERROR OF A GYROVERTICAL WITH
MIXED GYROSCOPE CORRECTION CHARACTERISTICS

UDC 531.383

[Article by A. P. Filimonov, Leningrad Institute of Precision
Mechanics and Optics; Leningrad, Izvestiya VUZ, Priborostro-
yeniye, Russian, No 3, 1973, pp 94-96]

This article examines the influence of the
static moment and the horizontal sinusoidal
acceleration on the mean value of the error
in stabilization of a gyrovertical with mixed
gyroscope correction characteristics. Pre-
cise and approximate expressions of the er-
ror are derived.

A gyroscopic vertical with nonlinear characteristics of
the gyroscope correction diagram has one major disadvantage.
Acted on by sign-variable linear accelerations a null shift
arises in the stabilization error [1], [2].

Reference [1] gives the derivation of the dependence
between change in the mean position of the gyrovertical n_0
and the component of the diurnal rotation of the Earth (influ-
ence of the rate of movement of a ship is usually ignored
since it is many times smaller than the linear velocity of
rotation of the Earth) for gyroverticals with relay charac-
teristics of the gyroscope correction diagram:

$$n_0 = \frac{a}{a_V \cdot K\left(\frac{x}{a}\right) \cdot \frac{1}{4} \cdot \frac{x^2}{a^2}} \qquad (1)$$

where $a = \frac{x}{g}$ is the amplitude of the deviation of the dynamic
vertical; $u = u\cos\phi$ is the horizontal component of the diurnal

-29-

USSR   UDC 632.95

FEL'DMAN, I. N., MALISHKEVICH, Yu. Ya., FILIMONOV, B. F., and GEYD, Yu. P.

"An Information-Search System for the Technology of Pesticides"

V. sb. Khim. sredstva zashchity rast. (Chemical Protection of Plants --
Collection of Works), No 3, Moscow, 1973, pp 155-159 (from RZh-Khimiya, No 22,
25 Nov 73, Abstract No 22N502)

Translation: The principles underlying the preparation of punch cards for
pesticides are described. The cards contain information on the classes of
chemical compounds, process flow diagram, preparatory forms, toxicology,
effectiveness, residues, manufacturing companies, prices on the world market.

1/1

USSR

MITYUSHEV, S. I., Chairman of the Department of Communications of ~~████~~,
~~FILIMONOV, R. M.~~, Chief Engineer, Computing Center of the Sverdlovsk ████,
SUKHORUKOV, V. G., Engineer, MATSKEVICH, S. N., Engineer, PLOTITSIN, R. I.,
Engineer

"A System for Continuously Checking the Reliability of Transmitted Infor-
mation"

Abstract: A system is described for continuously checking the reliability
of data transmission in railway communications systems. The system covers
the entire communication channel from the primary document to the computer
storage unit. The basis of the procedure is guarding against errors in the
primary document by introducing a mod 10 check. A check digit is computed
and entered in the primary coded documentation. The check digits give the
information of the primary document a certain immunity to interference
inasmuch as they make error detection possible. Three versions of the mod
10 check system are examined on the basis of a digital message made up of
six digits. A block diagram for data transmission with continuous reliability
check is presented and described in detail.

1/1

USSR

UDC 533.652./661.013

FILIMONOV, B. P.

"Recurrence Period of Loads on an Aircraft Flying in Distrubed Air"

Sb. Nauchn. tr. Novosib. elektrotekhnin-t (Collection of Scientific Works of Novosibirsk Electrotechnical Institute), 1969, No. 1, pp 86-90 (from RZh-Mekhanika, No 4, Apr 70, Abstract No 4B335)

Translation: An expression is obtained relating in general form the mathematical expectations of the number of excesses of a given level for a load on a wing and the overload of an aircraftflying in a turbulent atmosphere. G. V. Vronskiy.

1/1

- 3 -

USSR   UDC 669.15.013.8:620.194.2:621.785.78

NAZAROV, A. A., SMIRNOV, B. N., FILIMONOV, G. N.,

"Phase Composition of Kh18N10T Steel and Its Corrosion Resistance"

Translation: The effect of aging at 340-750° for from 5 to 10,000 hours on
the corrosion resistance of Kh18N10T steel in environments with a high chloride
content is investigated. It was established that the variation in phase com-
position during aging has no effect on the tendency of the steel toward
stress corrosion cracking. The defining factors in stress corrosion cracking
are the tensile stresses and the environment. There are 4 illustrations and
1 table.

1/1

1/2   020   UNCLASSIFIED   PROCESSING DATE--27NOV70
TITLE--SCALE EFFECT IN THE CORROSION FATIGUE OF STEEL SHAFTS WITH PRESS
   FITTED PARTS -U-
AUTHOR-(04)-KARPENKO, G.V., PRGORETSKY, R.G., SIRAK, YA.M., FILIMONOV,
   G.N.
COUNTRY OF INFO--USSR

SOURCE--FIZ. KHIM. MEKHAN. MAT., 1970, 6, (2), 7-10

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS, MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--SEA WATER CORROSION, CORROSION FATIGUE, CORROSION RESISTANCE,
   STEEL CORROSION, SHAFT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3002/1671   STEP NO--UR/0369/70/006/002/0007/0010

CIRC ACCESSION NO--AP0129041
                        UNCLASSIFIED

CIRC ACCESSION NO--AP0129041

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. STEEL SHAFTS 5-50 MM IN DIA. WITH
  PRESS FITTED PARTS ATTACHED TO THEM WERE SUBJECTED TO CORROSION FATIGUE
  TESTS IN A 3PERCENT NACL SOLUTION (SIMULATED SEA WATER). THE CORROSION
  FATIGUE RESISTANCE OF THE SHAFTS WAS APPRECIABLY REDUCED BY THE PRESENCE
  OF THE PRESS FITTED PARTS (BUSHINGS). HOWEVER, THE SCALE FACTOR (THE
  EFFECT OF SHAFT DIA. ON CORROSION FATIGUE RESISTANCE) WAS QUALITATIVELY
  THE SAME; INCREASING THE DIA. ALSO INCREASED THE FATIGUE LIFE.

UNCLASSIFIED

USSR   UDC 771.537:621.33

ZAKHARENKOV, B. F., Candidate of Sciences, PAVLYUCHUK, V. A., Candidate of
Sciences, and FILIMONOV, R. P.

"Equipment for Measuring the Wiener Spectra of Photographic Noises"

Leningrad, Optiko-Mekhanicheskaya Promyshlennost', No 9, Sep 73, pp 62-63

Abstract: A block diagram is presented of an installation for measurement of
the Wiener spectra of photographic noises. This device was constructed on the
basis of articles published by the authors in Numbers 2 and 3, 1972, of the
same journal. The equipment is described in detail, together with the manner
of its operation. This unit is also suitable for the measurement of average
regular values of the transmission factor, and for the measurement of mean-
square fluctuations of values of the transmission factor of the analyzed
specimens. 1 figure. 2 references.

1/1

USSR   UDC:620.179.16

GREBENNIK, V. S., FILIMONOV, S. A.

"The URT-10 Ultrasonic Resonant Thickness Meter"

Defektoskopiya, No. 3, 1970, pp. 43-49

Abstract: The operating principle, schematic diagram and primary techni-
cal characteristics of the URT-10 ultrasonic resonant thickness meter
are presented. This is the first device to be equipped with a unit for
automatic thickness reading and a unit indicating the reliability of
the measurement results. The thickness is read from a calibrated galvanom-
eter scale. The thickness meter allows products with plane parallel walls,
tubing and outer sections of tube bends to be tested. The range of
thicknesses measured is 2-14 mm (for steel); measurement error not over
±1-3% of the thickness being tested; tubing diameter 25 mm and more; inter-
nal bend radius at least equal to tube diameter; power supply 220 v, 50 Hz;
power consumption not over 100 va; weight of device not over 12 Kg; size
200 by 260 by 400 mm.

1/1

"Design of the Electroacoustical Channel of an Ultrasonic Resonant Thickness Meter"

Abstract: A method is described for designing the electroacoustical channel of an ultrasonic resonant thickness meter using electronic computer equipment. The method allows the channel to be designed in contact and immersion versions for the resonant method of testing considering frequency-dependent attenuation. The frequency dependence of conductivity (resulting from the piezoeffect) of the piezoconverter is calculated, as included in various acoustical systems and analysis of this dependence is used to study the electroacoustical channel.

1/1

USSR   UDC 681.325.3

FILIMONOV, V. A., EFTERZON, Yu. Ya.

"Code-Voltage Converter with Addition of Currents"

Materialy II Nauchno-tekhn. Konf. Kramatorsk. N-i. i Proyektno-tekhnol. In-ta.
Mashinostr., 1969 [Materials of Second Scientific and Technical Conference of
Kramatorsk Scientific Research and Planning-Technological Institute for Machine
Building, 1969 -- Collection of Works], Kramatorsk, 1970, pp 129-132. (Trans-
lated from Referativnyy Zhurnal Avtomatika, Telemekhanika i Vychislitel'naya
Tekhnika, No. 5, 1971, Abstract No. 5B488 by V. V.).

Translation: An analysis is presented of code-voltage converters of two types:
with addition of voltage and with addition of current. The defects of circuits
of the first type are determined. Recommendations are given for application of
circuits of the second type.

1/1

1/2   009   UNCLASSIFIED   PROCESSING DATE--30OCT70
TITLE--MICROSCOPIC DETERMINATION OF THE FINENESS OF FILTRATION -U-

AUTHOR--FILIMONOV, V.G.

COUNTRY OF INFO--USSR

SOURCE--USSR 260,725
REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970,
DATE PUBLISHED--01APR70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--FILTRATION, PARTICLE SIZE, CHEMICAL PATENT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3002/1471   STEP NO--UR/0482/70/000/000/0000/0000

CIRC ACCESSION NO--AA0128870
                    UNCLASSIFIED

CIRC ACCESSION NO--AA0128870
ABSTRACT/EXTRACT--(U) GP-0-   ABSTRACT. MICROSCOPIC DETN. OF THE FINENESS
   OF FILTRATION ATTAINABLE WAS CARRIED OUT BY ADDING A SOLID IMPURITY TO
   THE FLOW BEFORE FILTRATION AND TAKING A SAMPLE AFTER FILTRATION TO DET.
   PARTICLE SIZE UNDER A MICROSCOPE.   TO SAVE TIME AND INCREASE THE
   ACCURACY OF THE DETN., THE IMPURITY WAS ADDED TO THE GAS STREAM AND A
   FILTERED PARTICLE MICROSCOPE SLIDE COATED WITH A LAYER OF AQ. POLY(VINYL
   ALC.) SOLN. WAS INSERTED INTO THE STREAM TO CATCH THE PARTICLES.

UNCLASSIFIED

USSR   UDC: 621.791:621.472

AFANAS'YEV, I. V., SIDOROV, N. G., KRICHEVSKIY, YE. YU.,and FILIMONOV, V. I.

"Use of Solar Ray Energy for the Welding of Materials"

Kiev, Avtomaticheskaya svarka, Sept 71, no 9, pp 67-68

Abstract: Experiments involving the use of solar radiation heating units for welding aluminum, steel,and titanium indicate the following: radiant energy is capable of bringing up various materials to the point of melting and welding; effective results are facilitated by mirrors shaped to optical precision; the ultimate thickness of the metal being welded is determined by its thermophysical properties; increasing the absorption coefficient of solar rays by the weldpool will reduce radiant energy losses in welding; the bead width is determined by the focal spot diameter: the smaller the diameter, the deeper the penetration. Figures in the original article give an over-all view of a solar high-temperature furnace with an inclined optical concentrator axis, a schematic of the URAN-1 solar radiation heating unit, and finally a schematic drawing of a solar radiation welding unit incorporating a concentrator for parallel solar rays to the focal point.

1/2

USSR

AFANAS'YEV, I. V., et al, Avtomaticheskaya svarka, Sept 71, no 9, pp 67-68

It is suggested that a source of this type built from tantalum carbide may be heated in outer space vacuum up to 3500°K. Arrangements for convenient transportation and reducing the weight of the system are discussed. The long-range potentialities of solar radiation welding are stressed.

2/2

- 58 -

1/2   013   UNCLASSIFIED   PROCESSING DATE--18SEP70
TITLE--THE REGULATION OF THE FETAL ERYTHROPOIESIS -U-

AUTHOR--FILIMONOV, V.I.

COUNTRY OF INFO--USSR

SOURCE--BYULLETIN' EKSPERIMENTAL'NOY BIOLOGII I MEDITSINY, 1970, VOL 69,
   NR 3, PP 20-21
DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--EMBRYOLOGY, CAT, ERYTHROPOIETIN

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1982/0859   STEP NO--UR/0219/70/069/003/0020/0021

CIRC ACCESSION NO--AP0052293
                        UNCLASSIFIED

CIRC ACCESSION NO--AP0052293
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. FOR THE PURPOSE OF ELUCIDATING THE
  POSSIBLE INFLUENCE OF MATERNAL ERYTHROPOIETIN ON THE FETAL
  ERYTHROPOIESIS THE AUTHOR INDUCED POLYGLOBULIA IN GRAVID RATS.
  NOTWITHSTAINDING THE FACT THAT IN POLYBLOBULIA IN THE MOTHER THE
  ELABORATION OF ERYTHROPOIETIN CEASES (THE LAST SEVEN DAYS OF PREGNANCY),
  IN NEWBORN RATS THE RED BLOOD INDICES DID NOT DIFFER FROM CONTROL. IT
  IS SHOWN THAT THE CESSATION OF ERYTHROPOIETIN DEVELOPMENT IN LACTATING
  RATS ALSO DOES NOT INFLUENCE THE DEVELOPMENT OF NEWBORNS.

UNCLASSIFIED